

# PATENT SPECIFICATION

(11) 1 217 382

DRAWINGS ATTACHED



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(21) Application No. 21547/68 (22) Filed 7 May 1968

(23) Complete Specification filed 18 Feb. 1969

(45) Complete Specification published 31 Dec. 1970

(51) International Classification F 16 b 37/04

(52) Index at acceptance

F2H 17A4

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## (54) SHEET METAL NUT FOR ASSEMBLY IN AN APERTURE IN A SUPPORT

(71) We, CARR FASTENER COMPANY LIMITED, a British Company of Nottingham Road, Stapleford, Nottinghamshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a sheet metal nut for assembly in an aperture in a support.

According to the present invention, a nut for assembly in an aperture in a support is formed from a sheet metal blank cut and bent to provide a base formed with a screw threaded opening, a pair of resilient arms extending substantially normal to the base from two opposed side edges thereof, each arm being formed with a laterally extending flange at its free end and a resilient tongue formed from a medial portion of the arm and inclined away from the arm with its free end terminating in spaced relation to the flange, the side edges of the tongues having integral wings extending away from the respective arms such that the ends of the wings adjacent the free ends of the tongues form abutments, the arrangement being such that when the nut is assembled in the aperture, it is retained by the flanges abutting one face of the support and the wings abutting the opposite face.

The nut is adapted to be assembled in an aperture in a support by moving it base first through the aperture and exerting axial pressure to cause the tongues to snap past the edge of the aperture whereby the flanges engage one face of the support and the abutments on the tongues engage the opposite face to secure the nut in assembly with the support.

In use, a threaded fastener such as a screw or bolt is inserted through the aperture in the support and screwed into the screw threaded opening in the base of the nut.

If desired, a further pair of resilient arms

[Price 5s. 0d. (25p)]

is provided extending substantially normally to the base from two further opposed sides thereof. The free end of each of the further arms terminates at the same distance from the base as the free ends of the said resilient tongues and each further arm is formed with a wing on each side defining an abutment similar to that described with reference to the above mentioned tongues. The abutments on the said further arms are adapted to engage the said opposite face of the support and serve as additional means for retaining the nut in assembly with the support.

To enable the invention to be fully understood, it will now be described, by way of example, with reference to the drawings accompanying the provisional specification in which:—

Figure 1 is an under plane view of a sheet metal nut according to one embodiment of the invention;

Figure 2 is a sectional view on the line A—A of Figure 1;

Figure 3 is a sectional view on the line B—B of Figure 1;

Figure 4 is a side view of an assembly including a sheet metal nut as illustrated in Figures 1 to 3; and

Figure 5 is an exploded view in perspective of the parts of the assembly illustrated in Figure 4.

As shown in the drawings, the sheet metal nut is formed from a blank of sheet metal, for example spring steel which is cut and bent to form a rectangularly shaped base 1 having an aperture 2, the edge of which is shaped in the form of a helix so as to provide a screw threaded aperture for mating engagement by a screw threaded fastener. A first pair of resilient arms 3, 4, extend from the side edges of two of the opposed sides of the base substantially normal to the plane of the base, each arm having a laterally extending flange 5, 6, at its free end.

The medial portions of the respective

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arms are cut and bent to form resilient tongues 7, 8, which are inclined at a small angle away from the respective arms. The free ends of the tongues terminate in spaced relation to the flanges 5, 6. The opposed side edges of each of the tongues are bent to form integral wings 7a, 8a directed away from the respective arms, the ends of the wings adjacent the free ends of the arms forming lateral abutments for a purpose to be described.

Two further resilient arms 9, 10, extend respectively from the two other opposed side edges of the rectangularly shaped base 1 and the opposed side edges of these further arms are formed with wings 9a, 10a, similar to the wings 7a, 8a. The said further arms have free ends terminating in the same plane as the free ends of the tongues 7, 8, and the ends of the wings 9a, 10a, adjacent the free ends of the said further arms 9, 10, form additional abutments for a purpose to be described.

In use the nut is assembled with the support such as a panel *a* by inserting it base first through the aperture *b* and snapping the tongues 7, 8, and the further arms 9, 10, past the edge of the aperture when the nut will be secured in assembly with the support by the flanges 5, 6, abutting one face of the panel *a* and the abutments defined by the wings 7a, 8a, 9a, 10a abutting the opposite face of the panel *a*.

When thus assembled the screw threaded aperture in the base 1 will be aligned with the aperture *b* in the panel *a*. To secure an apertured member such as *c* to the panel, a screw threaded fastener such as *d* is inserted through the aperture in the member and between the arms of the assembled nut and then screwed into the screw threaded aperture in the base 1.

It will be understood that any desired member or article may be secured to the nut.

In certain cases it is desirable that the screw threaded aperture comprise more than a single thread as is defined by the helically shaped edge of the aperture in the base 1 as shown in the embodiment illustrated in the drawings. In such a case the material

of the base is thickened to form a boss-like portion which is internally screw threaded to provide a multiplicity of threads for engagement by the screw threads of a fastener such as *d*.

#### WHAT WE CLAIM IS:—

1. A nut for assembly in an aperture in a support formed from a sheet metal blank cut and bent to provide a base formed with a screw threaded opening, a pair of resilient arms extending substantially normal to the base from two opposed side edges thereof, each arm being formed with a laterally extending flange at its free end and a resilient tongue formed from a medial portion of the arm and inclined away from the arm with its free end terminating in spaced relation to the flange, the side edges of the tongues having integral wings extending away from the respective arms such that the ends of the wings adjacent the free ends of the tongues form abutments the arrangement being such that when the nut is assembled in the aperture, it is retained by the flanges abutting one face of the support and the wings abutting the opposite face.

2. A nut according to claim 1 wherein the base is of rectangular shape, the said resilient arms extending from two opposed side edges of the base and a further resilient arm extending from each of the other two opposed side edges, the free end of each said further arm terminating at the same distance from the base as the free ends of said resilient tongues on said first mentioned arms.

3. A nut according to claim 2 wherein each further arm is formed with an integral wing on each side edge.

4. A sheet metal nut for assembly in an aperture in a support substantially as described with reference to the drawings accompanying the provisional specification.

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